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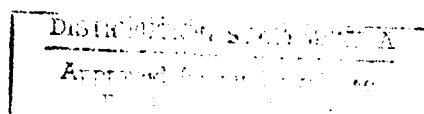
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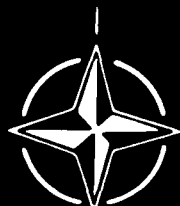


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THE MISSION OF AGARD

The mission of AGARD is to bring together the leading personalities of the NATO nations in the fields of science and technology relating to aerospace for the following purposes:

- Exchanging of scientific and technical information;
- Continuously stimulating advances in the aerospace sciences relevant to strengthening the common defence posture;
- Improving the co-operation among member nations in aerospace research and development;
- Providing scientific and technical advice and assistance to the North Atlantic Military Committee in the field of aerospace research and development;
- Rendering scientific and technical assistance, as requested, to other NATO bodies and to member nations in connection with research and development problems in the aerospace field;
- Providing assistance to member nations for the purpose of increasing their scientific and technical potential;
- Recommending effective ways for the member nations to use their research and development capabilities for the common benefit of the NATO community.

The highest authority within AGARD is the National Delegates Board consisting of officially appointed senior representatives from each member nation. The mission of AGARD is carried out through the Panels which are composed of experts appointed by the National Delegates, the Consultant and Exchange Programme and the Aerospace Applications Studies Programme. The results of AGARD work are reported to the member nations and the NATO Authorities through the AGARD series of publications of which this is one.

Participation in AGARD activities is by invitation only and is normally limited to citizens of the NATO nations.

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PREFACE

This Bulletin presents the 1981 programme approved by the AGARD National Delegates Board. Section I includes a chronological listing of the meetings tentatively scheduled to take place during 1981 and Section II gives a detailed description of the individual Panel Programmes, the Consultant and Exchange Programme, and the Military Committee Studies Programme. The total budget required to support the Proposed 1981 AGARD Technical Programme is presented in Section III. The Publication Summary in Section IV identifies by activity the AGARD publications scheduled for initiation and/or publication in 1981.

Jack Burnham

Jack Burnham
Director

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I – CALENDAR OF PLANNED MEETINGS – 1981

Traduction des Titres des Réunions

CALENDAR OF PLANNED MEETINGS 1981

<i>Tentative Dates</i>	<i>Location</i>	<i>Panel</i>	<i>Type of Meeting/Subject</i>
2-5 March	UNITED STATES (NASA-Ames, Moffett Field)	Fluid Dynamics	Lecture Series No.114 Dynamic Stability Parameters
16-19 March	BELGIUM (VKI, Brussels)	Fluid Dynamics	Lecture Series No.114 Dynamic Stability Parameters
25-27 March	FRANCE (Paris)	Headquarters	50th National Delegates Board Meeting 30th Panel Chairmen's Meeting 11th National Coordinators' Meeting 30th Steering Committee Meeting
30 March-3 April	NETHERLANDS (Soesterberg)	Aerospace Medical	Specialists' Meeting on Aural Communication in Aviation
5-10 April	TURKEY (Çesme)	Structures & Materials	52nd Panel Meeting/Specialists' Meetings on Aircraft Corrosion and Corrosion Fatigue
6-10 April	UNITED STATES (Monterey, Cal.)	Electromagnetic Wave Propagation	Symposium on Special Topics in Optical Propagation (NATO-Secret)
6-10 April	FRANCE (Paris)	Flight Mechanics	58th Panel Meeting/Symposium on The Impact of Military Applications on Rotorcraft and V/STOL Aircraft Design (NATO-Secret)
2-3 April	UNITED KINGDOM (London)	Propulsion & Energetics	Lecture Series No.113 Microcomputer Applications in Power and Propulsion Systems
6-7 April	GERMANY (Munich)	Propulsion & Energetics	Lecture Series No.113 Microcomputer Applications in Power and Propulsion Systems
9-10 April	ITALY (Genoa)	Propulsion & Energetics	Lecture Series No.113 Microcomputer Applications in Power and Propulsion Systems
4-8 May	GERMANY (Stuttgart)	Guidance & Control	32nd Panel Meeting/Symposium on The Impact of New Guidance and Control Systems on Military Aircraft Cockpit Design (NATO-Confidential)
11-15 May 18-20 May	UNITED KINGDOM (London)	Military Committee Studies	AAS 13 & 14 Meetings 20th Meeting of the AASC - Final Review of AAS 13 - Initial Review of AAS 14 - Final Terms of Reference for AAS 15 & 16 - Organization of Study Group 15 (NATO-Secret)
11-15 May	FRANCE (Toulouse)	Fluid Dynamics	48th Panel Meeting/Symposium on Aerodynamics of Power Plant Installation (with participation of PEP)
11-15 May	FRANCE (Toulouse)	Propulsion & Energetics	57th Panel Meeting/Specialists' Meeting on Helicopter Propulsion Systems
22-23 June	FRANCE (Paris)	Aerospace Medical	Lecture Series No.115 Personal Visual Aids for Aircrew

<i>Tentative Dates</i>	<i>Location</i>	<i>Panel</i>	<i>Type of Meeting/Subject</i>
25-26 June	GERMANY (Fürstenfeldbruck)	Aerospace Medical	Lecture Series No.115 Personal Visual Aids for Aircrew
22-26 June	NORWAY (Røros)	Avionics	41st Panel Meeting/Symposium on Tactical Airborne Distributed Computing and Networks
31 August- 1 September	NORWAY (Bølkesjø)	Avionics	Lecture Series No.116 Electromagnetic Compatibility
3-4 September	GERMANY (Munich, Oberpfaffenhofen)	Avionics	Lecture Series No.116 Electromagnetic Compatibility
7-8 September	ITALY (Rome)	Avionics	Lecture Series No.116 Electromagnetic Compatibility
7-11 September	GERMANY (Munich)	Technical Information	34th Panel Meeting/Specialists' Meeting on What Should Users Expect from Information Storage and Retrieval Systems of the 1980's?
16-18 September	UNITED KINGDOM (Oxford)	Headquarters	51st National Delegates Board Meeting 17th Annual Meeting 31st Panel Chairmen Meeting
21-25 September	BELGIUM (Brussels)	Electromagnetic Wave Propagation	28th Panel Meeting/Symposium on Medium, Long and Very Long Wave Propagation (at frequencies less than 3000 kHz)
27 September- 2 October	NETHERLANDS (Noordwijkerhout)	Structures & Materials	53rd Panel Meeting/Specialists' Meetings on Maintenance in Service of High Temperature Parts and Dynamic Environmental Qualification Techniques
1-2 October	NORWAY (Bølkesjø)	Guidance & Control	Lecture Series No.117 Multivariable Analysis and Design Techniques
5-6 October	NETHERLANDS (Delft)	Guidance & Control	Lecture Series No.117 Multivariable Analysis and Design Techniques
8-9 October	TURKEY (Ankara)	Guidance & Control	Lecture Series No.117 Multivariable Analysis and Design Techniques
5-9 October	ITALY (Florence)	Flight Mechanics	59th Panel Meeting/Symposium on Combat Aircraft Manoeuvrability (NATO-Confidential or Secret)
12-16 October	GREECE (Athens, Kavouri)	Guidance & Control	33rd Panel Meeting/Symposium on Guidance and Control Technology for Highly Integrated Systems (NATO-Confidential)
19-23 October	GREECE (Athens, Kavouri)	Avionics	42nd Panel Meeting/Symposium on Impact of Advanced Avionics Technology on Ground Attack Weapon Systems (NATO-Secret)
19-20 October	DENMARK (Copenhagen)	Structures & Materials	Lecture Series No.118 Fatigue Testing Methodology
22-23 October	PORTUGAL (Lisbon)	Structures & Materials	Lecture Series No.118 Fatigue Testing Methodology
26-27 October	GREECE (Athens)	Structures & Materials	Lecture Series No.118 Fatigue Testing Methodology

<i>Tentative Dates</i>	<i>Location</i>	<i>Panel</i>	<i>Type of Meeting/Subject</i>
26-30 October	UNITED KINGDOM (London)	Propulsion & Energetics	58th Panel Meeting/Symposium on Ramjets and Ramrockets for Military Applications (NATO-Confidential)
26-30 October	ITALY (Naples)	Aerospace Medical	38th Panel Meeting/Specialists' Meeting* on Impact Injury Caused by Linear Acceleration: Mechanisms, Prevention and Cost
2-6 November	PORTUGAL (Lisbon)	Fluid Dynamics	49th Panel Meeting/Symposium on Fluid Dynamics of Jets with Applications to V/STOL
9-13 November 16-18 November	UNITED STATES (Washington D.C.)	Military Committee	AAS 14 & 15 Meetings 21st Meeting of the AASC - Final Review of AAS 14 - Initial Review of AAS 15 - Consideration of Proposed AA Studies - Organization of Study Group 16 (NATO-Secret)

SPECIAL COURSES

11-22 May	NETHERLANDS (Delft)	Flight Mechanics	Flight Test Instrumentation Course
4-8 May	BELGIUM (VKI, Brussels)	Fluid Dynamics/ Structures & Materials	Modern Data Analysis Techniques in Noise and Vibration Problems with Particular Emphasis on Aeroacoustic Applications

* This Meeting may be postponed to Spring 1982.
Decision to be made at October 1980, NDB Meeting.

TRADUCTION DES TITRES DES REUNIONS

Titles of Meetings

Titres des Réunions

Aerospace Medical Panel

Aural Communication in Aviation

-- Les Communications Auditives en Aviation

-- Impact Injury Caused by Linear Acceleration:
Mechanisms, Prevention and Cost

-- Les Blessures d'Impact causées par l'Accélération
Linéaire: Mécanisme, Prévention et Coût

Avionics Panel

-- Tactical Airborne Distributed Computing and Networks

-- Calculs Répartis et Réseaux Tactiques Aéroportés

-- Impact of Advanced Avionics Technology on Ground
Attack Weapon Systems

-- L'Impact de la Technologie Avancée dans ' Domaine
de l'Electronique de Bord sur les Systèmes d'Armes
pour Attaque d'Objectifs Terrestres

Electromagnetic Wave Propagation Panel

-- Special Topics In Optical Propagation

-- Sujets Spéciaux relatifs à la Propagation Optique

-- Medium, Long and Very Long Wave Propagation
(at frequencies less than 3000 kHz)

-- La Propagation des Ondes Moyennes, Longues et Très
Longues (à des fréquences inférieures à 3000 kHz)

Flight Mechanics Panel

-- The Impact of Military Applications on Rotorcraft
and V/STOL Aircraft Design

-- L'Impact des Applications Militaires sur la Conception
des Giravions et des ADAC/ADAV

-- Combat Aircraft Manoeuvrability

-- La Manoeuvrabilité des Avions de Combat

Fluid Dynamics Panel

-- Aerodynamics of Power Plant Installation

-- L'Aérodynamique de l'Installation des Groupes
Propulseurs

-- Fluid Dynamics of Jets with Applications to V/STOL

-- La Dynamique des Fluides des Jets, avec Applications
aux ADAC/ADAV

Guidance and Control Panel

-- The Impact of New Guidance and Control Systems
on Military Aircraft Cockpit Design

-- L'Impact des Nouveaux Systèmes de Guidage et de
Contrôle sur la Conception de l'Habitacle des Avions
Militaires

-- Technology for Highly Integrated Systems

-- La Technologie du Guidage et du Contrôle pour
Systèmes à Intégration Poussée

Propulsion and Energetics Panel

-- Helicopter Propulsion Systems

-- Les Systèmes Propulsifs des Hélicoptères

-- Ramjets and Ramrockets for Military Applications

-- Statoréacteurs et Statofusées pour Applications
Militaires

Structures and Materials Panel

-- Corrosion and Corrosion Fatigue

-- La Corrosion et la Fatigue sous Corrosion

-- Maintenance in Service of High Temperature Parts
and Dynamic Environmental Qualification
Techniques

-- Maintien en service des Parties soumises à de Fortes
Températures et Techniques Dynamiques de
Qualification en fonction de l'Environnement

Technical Information Panel

What Should Users Expect from Information Storage and Retrieval Systems of the 1980's?

Que doivent attendre les Utilisateurs des Systèmes de Stockage et d'Extraction d'Informations dans les années 80?

Lecture Series

- | | |
|--|--|
| - Dynamic Stability Parameters | - Paramètres de Stabilité Dynamique |
| - Microcomputer Applications in Power and Propulsion Systems | - Applications des Micro-ordinateurs aux Systèmes Energétiques et Propulsifs |
| - Personal Visual Aids for Aircrew | - Aides Visuelles Personnelles pour les Equipages d'Avions |
| - Electromagnetic Compatibility | - La Compatibilité Electromagnétique |
| - Multivariable Analysis and Design Techniques | - Techniques de Conception et d'Analyse à Variables Multiples |
| - Fatigue Testing Methodology | - Méthodologie des Essais de Fatigue |

Aerospace Applications Studies Committee

- | | |
|------------------------------------|--|
| - AASC Meetings and Working Groups | - Réunions de l'AASC et Groupes de Travail |
|------------------------------------|--|

Headquarters

- | | |
|-------------------------------------|--|
| - AGARD Annual Meeting | - Réunion Annuelle de l'AGARD |
| - National Delegates Board Meetings | - Réunions du Conseil des Délégués Nationaux |
| - Steering Committee Meeting | - Réunion du Comité d'Orientation |
| - Panel Chairmen Meetings | - Réunions des Présidents de Panels |
| - National Coordinators Meeting | - Réunion des Coordonnateurs Nationaux |

Special Courses

- | | |
|---|---|
| - Flight Test Instrumentation Course | - Cours sur l'Instrumentation des Essais en Vol |
| - Modern Data Analysis Techniques in Noise and Vibration Problems with Particular Emphasis on Aeroacoustic Applications | - Techniques Modernes d'Analyse des Données dans les Problèmes de Bruit et de Vibrations – En Particulier, Applications Aéroacoustiques |

II – PROGRAMME DESCRIPTIONS

PANELS

CONSULTANT & EXCHANGE PROGRAMME

- INDIVIDUAL CONSULTANTS
- LECTURE SERIES

MILITARY COMMITTEE STUDIES

HEADQUARTERS

AEROSPACE MEDICAL PANEL

Chairman: Dr B.O.HARTMAN, US
Deputy Chairman: Col Méd. J.BANDE, BAF
Executive: Sqn Ldr J.M.MULLANEY, RAF

PROGRAMME

The Spring Specialists' Meeting will discuss 'Aural Communication in Aviation'. The importance of aural information in aerospace operations is secondary only to visual information yet, despite the dependence of military operations on the effective use of audio warnings and on reliable voice communication, many of the systems employed have serious shortcomings. The considerable research effort which has been expended in this field will be presented.

The Fall Specialists' Meeting will be devoted to 'Impact Injury Caused by Linear Acceleration: Mechanisms, Prevention and Cost'. It will cover, inter alia, improvements made since the topic was last addressed in 1971.

The Panel will publish Conference Preprints and Conference Proceedings of both these meetings.

MEETINGS

Specialists' Meeting	— Aural Communication in Aviation	30 March—3 April 1981 Netherlands
38th Panel Meeting/ Specialists' Meeting	— Impact Injury caused by Linear Acceleration: Mechanisms, Prevention and Cost	26—30 October 1981 Italy

PUBLICATIONS

<i>Subject</i>	<i>Projected Publication Date</i>
Aural Communication in Aviation Conference Preprints	January 1981
Aural Communication in Aviation Conference Proceedings	July 1981
Impact Injury Caused by Linear Acceleration: Mechanisms, Prevention and Cost Conference Preprints	July 1981
Physiopathology of Spinal Conditions in Aerospace Medicine AGARDograph (French and English Versions)	July 1981
Visual Functions in High Altitude and Space AGARDograph (French Version)	October 1981

AVIONICS PANEL

Chairman: Dr M.VOGEL, FRG
Deputy Chairman: Mr Y.BRAULT, France
Executive: Lt Col J.B.CATILLER, USAF

PROGRAMME

The 1981 Avionics Panel Programme will include two Symposia and sponsorship of one Lecture Series.

The Spring Symposium is entitled 'Tactical Airborne Distributed Computing and Networks'. With the growing emphasis and resulting major trend to distributed computing and computer netting, it is very appropriate and timely that the Panel have a symposium on airborne applications of this technology. The advent of modern digital micro-electronics, digital micro-computing devices, recent agreements on standardisations of internal bus communications structures and developments in the area of secure high-rate external data links had indicated the practical capability for implementation and utilisation of airborne distributed and network systems. This symposium will bring out for discussion and review the various technologies and methodologies under current development or consideration.

The Fall Symposium is entitled 'Impact of Advanced Avionics Technology on Ground Attack Weapon Systems'. New technology including new electromagnetic and electro-optic sensors, high-density data and signal processors, digital exchanges and advanced man-machine interfaces as well as new components and materials will allow for concepts of new smaller and cheaper tactical fighters with all weather, day-and-night capabilities. This Symposium will review technology advances and the enhanced capabilities which they will provide for countering armour attacks as well as providing air support and interdiction capabilities under all conditions.

The Panel will sponsor a Lecture Series on 'Electromagnetic Compatibility'.

MEETINGS

41st Panel Meeting/ Symposium	– Tactical Airborne Distributed Computing and Networks	22–26 June 1981 Norway
42nd Panel Meeting/ Symposium (NATO-Secret)	– Impact of Advanced Avionics Technology on Ground Attack Weapon Systems	19–23 October 1981 Greece

PUBLICATIONS

<i>Subject</i>	<i>Projected Publication Date</i>
Tactical Airborne Distributed Computing and Networks Conference Preprints	June 1981
Tactical Airborne Distributed Computing and Networks Conference Proceedings	September 1981
Impact of Advanced Avionics Technology on Ground Attack Weapon Systems Conference Preprints	October 1981
Impact of Advanced Avionics Technology on Ground Attack Weapon Systems Conference Proceedings	January 1982
Modern Display Technologies & Applications Advisory Report	March 1982

ELECTROMAGNETIC WAVE PROPAGATION PANEL

Chairman: Dr J.AARONS, US
 Deputy Chairman: Dr J.BELROSE, Canada
 Executive: Lt Col J.B.CATILLER, USAF

PROGRAMME

The 1981 Electromagnetic Wave Propagation Panel Programme will consist of two Symposia and the initiation of an AGARDograph. Topics considered will range from optical propagation to very long wave propagation and ionospheric modelling.

The Spring Symposium will be entitled 'Special Topics in Optical Propagation'. It will address such diverse topics as: optical transmission in the marine boundary layer for tactical communications at sea, pulse stretching due to scatter of high power blue-green laser propagation between satellites and submarines, theory of radiative light transfer across the ocean surface, and high-altitude propagation effects including earth limb radiance fluctuation in the infrared and effects of earth background on early-warning sensors.

The Fall Symposium will be entitled 'Medium, Long, and Very Long Wave Propagation (at frequencies less than 3000 kHz)'. Use of these bands has remained relatively constant despite some of their disadvantages. Much new propagation information has been obtained, principally at ELF and VLF frequencies, since the last AGARD Symposium on this topic. New techniques have not been applied below 3000 kHz. This Symposium will summarise current state of knowledge in this frequency band in areas of propagation, antennas and radio communications technology; present recently acquired data and knowledge; and speculate on trends and future use of these bands.

The AGARDograph on 'Ionospheric Model Thesaurus and User's Guide' will be a catalogue of various ionospheric and ionospheric effect models and their associated codes. Physical, statistical, and hybrid models will be described in a comprehensive manner. Descriptions, documentation and requirements as well as assumptions and limitations will be provided to aid users.

MEETINGS

28th Panel Meeting/ Symposium (NA10-Secret)	— Special Topics in Optical Propagation	6-10 April 1981 United States
29th Panel Meeting/ Symposium	— Medium, Long, and Very Long Wave Propagation (at Frequencies less than 3000 kHz)	21-25 September 1981 Belgium

PUBLICATIONS

<i>Subject</i>	<i>Projected Publication Date</i>
Propagation Effects in Space/Earth Paths Conference Proceedings	February 1981
Special Topics In Optical Propagation Conference Preprints	April 1981
Special Topics in Optical Propagation Conference Proceedings	July 1981
Medium, Long, and Very Long Wave Propagation (at Frequencies less than 3000 kHz) Conference Preprints	September 1981
Medium, Long, and Very Long Wave Propagation (at Frequencies less than 3000 kHz) Conference Proceedings	January 1982

FLIGHT MECHANICS PANEL

Chairman: M. l'Ingénieur J.F. RENAUDIE, France
Deputy Chairman: Mr R.J. BALMER, UK
Executive: Mr T. WILCOCK, UK

PROGRAMME

In 1981, the Flight Mechanics Panel will hold two classified Symposia and sponsor a special course, in addition to Working Group activities.

The first Symposium, on the topic of 'The Impact of Military Applications on Rotorcraft and V/STOL Aircraft Design' is intended to bring together both technologists and users in the field of V/STOL and rotorcraft. Jet-lift V/STOL aircraft are now operational with four nations, and the role of rotorcraft in the battlefield arena may be assuming a greater importance. US Navy plans have considered major advances in V/STOL technology. It appears timely to review the technological position in the light of operational possibilities and needs. The meeting will be classified Secret.

Topics to be addressed will include:

- Lessons from operational experience (mission effectiveness compared to conventional aircraft; use under adverse weather conditions; availability/maintainability in the field; etc.).
- Status of technology (particular projects; application of composite materials; new control technology; etc.).
- Technological deficiencies (why are the Harrier and helicopters the only operational VTOL; is the helicopter the only viable answer to sustained hover mission requirements; what are the problems in subsystems and in system integration; have we failed to provide the basis for a low-risk, cost-effective weapon system?).
- Military mission effectiveness (trade-offs between VTOL and CTOL; what are the missions specifically demanding VTOL; considerations of quick reaction time; base vulnerability).

An expanded Round Table Discussion is planned, to permit maximum debate amongst advocates and critics, designers and users.

The second Symposium will consider 'Combat Aircraft Manoeuvrability'.

Current and recent technology developments have opened up a range of possibilities for major improvements in the manoeuvrability of combat aircraft in the air-air and air-ground modes. There are now real prospects of exploiting a whole new regime of controlled flight, at angles of attack well beyond the normal stall limit, given the availability of automatic departure/spin prevention systems. There is, in addition, a range of new and not-so-new concepts capable of changing the traditional modes of control, of which thrust vectoring and direct lift and side-force generation are examples. All these concepts can be seen as improving combat manoeuvrability to some degree, but there is no simple way of assessing their usefulness, in terms of combat success rate, at the design stage. Most have reached the flight test stage, and a good deal of information must exist, at least in qualitative form, of their effect on combat manoeuvrability. A review of the situation is therefore planned, with the broad aim of relating technical possibilities to operational requirements. The meeting will be classified, possibly Secret.

The main areas to be considered are:

- Operational requirements (desirable improvements in manoeuvrability; influence on tactics; relation to agility of weapons; etc.).
- Prospects for improvements in manoeuvrability (spin-resistant configurations; improved high angle of attack aerodynamics; new control degrees of freedom; control usage for departure prevention).
- Prediction methods for aircraft performance and manoeuvrability (state-of-the-art and need for new methods or facilities).
- Assessment methods (combat simulation in computers, piloted simulators or flight; flight test techniques and instrumentation).

A further special course on 'Flight Test Instrumentation' is planned, similar to those held previously at Cranfield and DFVLR. This course will again be aimed at providing flight test instrumentation engineers with both the theory and practical application of instrumentation techniques and will include flight time in a laboratory aircraft.

The Panel's Working Group activities will include the publication of final reports from the Working Groups on 'Rotorcraft Icing' and 'Characteristics of Flight Simulator Visual Systems'. In addition, the work of the Flight Test

Instrumentation Group will continue with the completion of the final volume of the AG 160 series and further efforts on the updating of the Manual on Flight Test Techniques. Possible new Working Group topics include the 'Validation of Missile System Simulations' and 'Simulation of Ground Attack Techniques'.

MEETINGS

58th Panel Meeting/ Symposium	– Impact of Military Applications on Rotorcraft and V/STOL Aircraft Design	6–10 April 1981 France
59th Panel Meeting/ Symposium	– Combat Aircraft Manoeuvrability	5–9 October 1981 Italy

PUBLICATIONS

<i>Subject</i>	<i>Proposed Publication Date</i>
Subsystem Testing and Flight Test Instrumentation Conference Proceedings	January 1981
The Impact of Military Applications on Rotorcraft and V/STOL Design Conference Proceedings	August 1981
The Impact of Military Applications on Rotorcraft and V/STOL Design Advisory Report	August 1981
Characteristics of Flight Simulator Visual Systems Advisory Report	January 1981
Rotorcraft Icing Advisory Report	February 1981
Take-Off and Landing Measurements AGARDograph	January 1981
Calibration of Air Data Systems and Flow Direction Sensors AGARDograph	August 1981
Missile System Simulation Facilities AGARDograph	October 1981

FLUID DYNAMICS PANEL

Chairman: Dr K.J.ORLIK-RÜCKEMANN, Canada
Deputy Chairman: M. l'Ing. en Chef B.MONNERIE, France
Executive: Mr R.H.ROLLINS II

PROGRAMME

The Fluid Dynamics 1981 Programme will consist of two Symposia, sponsorship of a Lecture Series, a Special Course, and publication of several AGARDographs and other publications.

The Spring 1981 Symposium will be on the subject of 'Aerodynamics of Power Plant Installation' and will include significant contributions of the Propulsion and Energetics Panel. Powerplant installations involve complex flows, strongly influenced by viscous effects and often with important aerodynamic interactions between the airframe and propulsion system. The introduction of new vehicle propulsion concepts, and new points of emphasis in aircraft and missile design requirements, provide an expanding range of aerodynamic problems which call for both experimental and theoretical study. It is the purpose of the symposium to survey the current and foreseeable aerodynamic problems in powerplant installation and to review recent work which has improved basic understanding or has enhanced prediction and design methods in this field. Emphasis will be on powerplant installations for combat and transport aircraft but relevant work on missiles, drones and rotorcraft will also be included. Contributions to the Symposium will be presented in four topic areas: Combat Aircraft, Intakes, Afterbodies and Nozzles, Testing and Analysis Techniques, and Installation Aerodynamics of Transport Aircraft.

The Fall Symposium, on 'Fluid Dynamics of Jets with Applications to V/STOL' responds to major current developments in V/STOL aircraft, thrust vectoring and other applications of jets. The aim of the Symposium is to provide a forum for the presentation and discussion of recent advances in this field to improve our understanding of the fluid dynamics of jets and the fundamentals of mixing and to identify problems toward which future research should be directed. The main areas of interest are: Jet mixing with external flow; Effects of jets on neighbouring surfaces; Interaction of multiple jets; Effects of nozzle geometry; Ejectors, injectors, and thrust augmentors; Theoretical models; and Wind-tunnel simulation.

The Panel will sponsor a Lecture Series on 'Dynamic Stability Parameters' to review the impact of high angle of attack aerodynamics on the dynamic stability characteristics of aircraft and missiles and to present a state-of-the-art survey of the analytical, wind-tunnel and flight-test techniques used for dynamic stability work as well as of the mathematical models including non-linear and time-dependent formulations, used for the analysis of flight behaviour of the aircraft and of the pertinent sensitivity and simulator studies.

A Special Course will be offered jointly with the Structures and Materials Panel on the subject 'Modern Data Analysis Techniques in Noise and Vibration' with particular emphasis on aeroacoustic applications. The course will be presented at the von Kármán Institute in Belgium in May 1981.

The first round of eight small seminars convened by the Sub-Committee on Windtunnel Testing Techniques will be completed and an Advisory Report compiling the results of this activity will be presented.

MEETINGS

48th Panel Meeting/ – Aerodynamics of Power Plant Installation
 Symposium

11–15 May 1981
 Toulouse, France

49th Panel Meeting/ – Fluid Dynamics of Jets with Application to V/STOL
 Symposium

2–6 November 1981
 Lisbon, Portugal

PUBLICATIONS

<i>Subject</i>	<i>Projected Publication Date</i>
Computation of Viscous-Inviscid Interactions Technical Evaluation Advisory Report	March 1981
Aerodynamics of Power Plant Installation Conference Preprints	March 1981
A Compilation of Unsteady Turbulent Boundary-Layer Data AGARDograph	March 1981
Aircraft Drag due to Roughness, Excrescences, and Protuberances AGARDograph	March 1981
Modern Data Analysis Techniques in Noise and Vibration Special Course Proceedings Report	April 1981
Modeling the Lowest One Kilometer of the Atmosphere AGARDograph	June 1981
Report of Working Group on Fluid Dynamics of Internal Ballistics Report	June 1981
A Further Compilation of Compressible Boundary-Layer Data with a Survey of Turbulence Data AGARDograph	July 1981
Aerodynamics of Power Plant Installation Conference Proceedings	July 1981
Report of Wind-Tunnel Testing Techniques Sub-Committee on Convener Activities Advisory Report	September 1981
Fluid Dynamics of Jets with Applications to V/STOL Conference Preprints	October 1981
Aerodynamics of Power Plant Installation Technical Evaluation Advisory Report	December 1981
Two-Dimensional Wind-Tunnel Wall Interference AGARDograph	September 1982

GUIDANCE AND CONTROL PANEL

Chairman: Mr G.C.HOWELL, UK
Deputy Chairman: Mr R.S.VAUGHN, US
Executive: Col J.C. de CHASSEY, FAF

PROGRAMME

The Guidance and Control Panel 1981 programme consists mainly of two Symposia. The Panel will also be involved in a new Working Group, sponsor a Lecture Series and publish two AGARDographs.

The Spring Symposium considers 'The Impact of New Guidance and Control Systems on Military Aircraft Cockpit Design'. In recent years, the role of the pilot, particularly in single crew aircraft, has changed dramatically. The advances in flight control, weapon aiming systems, navigation and communication systems coupled with ECM and many other capabilities have presented a real challenge to the Aircraft System Designer and in particular to the design of a cockpit layout controls and displays that maximise the overall aircraft capability while keeping the pilot's workload within bounds. The air-to-air and air-to-ground attack missions are becoming very demanding and the range of munitions from free fall bombs and guns to agile guided weapons presents system integration problems which also reflect into cockpit design.

Big strides have been made in cockpit design in aircraft such as the F-16 and F-18, but it is timely for the Panel to organise a symposium on 'The Impact of New Guidance and Control Systems on Military Aircraft Cockpit Design'.

The Fall Symposium is entitled: 'Guidance and Control Technology for Highly Integrated Systems'. Potential military conflicts against numerically superior forces suggest the need for a highly integrated system approach to deployment and operations of allied forces. The highly integrated guidance and control system can be the key to high-performance, economical and reliable systems. To attain high reliability conventional design employs large independent subsystems. This technique for several reasons cannot be treated as a practical design for the future. Several recent GCP activities treating the impact of digital techniques have shown there is a rapid emergence of digital processor applications to guidance and control. These offer integration opportunities heretofore unavailable in analogue systems. Therefore, it is felt timely to organise a meeting assessing the impact of wholly integrated system concepts on the system elements and/or subsystems. The sessions will deal with operational requirements, major operational evaluation, cooperative systems, interdependent systems, autonomous integrated weapon systems, threat and target detection and identification, affordability and survivability.

The Panel will publish an AGARDograph on 'Advancements in Sensors and Their Integration into Aircraft Guidance and Control Systems'. A second AGARDograph is to be prepared on 'Filtering Technology Advances and Applications'.

The Panel also will sponsor a Lecture Series on 'Multi-Variable Analysis and Design Techniques' which is intended to provide the basic theories and concepts involved in the design of advanced guidance and control systems employing state-space, and multi-variable design methods.

Lastly, the Panel will be involved in a new Working Group on 'Distributed Micro-Processor Applications to Guidance and Control Systems'. The objective of the Working Group is to analyse the capability of micro-processors and determine methods design and implementation techniques to capitalise on these capabilities and define architecture that will permit standardisation to reduce cost and permit future implementation of advances in micro-processor technology without redesign penalties. Four meetings are planned with the report available in Spring 1983.

MEETINGS

32nd Panel Meeting/
Symposium
(Classified) — **The Impact of New Guidance and Control Systems on
Military Aircraft Cockpit Design**

4-8 May 1981
Germany

33rd Panel Meeting/
Symposium
(Classified) — **Guidance and Control Technology for Highly Integrated
Systems**

12-16 October 1981
Greece

PUBLICATIONS

<i>Subject</i>	<i>Projected Publication Date</i>
The Impact of New Guidance and Control Systems on Military Aircraft Cockpit Design Conference Proceedings	July 1981
The Impact of New Guidance and Control Systems on Military Aircraft Cockpit Design Advisory Report	September 1981
Guidance and Control Technology for Highly Integrated Systems Conference Proceedings	December 1981
Precision Positioning and Inertial Guidance Sensors: Technology and Operational Aspects Advisory Report	January 1981
Advancements in Sensors and Their Integration into Aircraft Guidance and Control Systems AGARDograph	October 1981
Filtering Technology Advances and Applications AGARDograph	December 1981
Spacecraft Guidance and Control AGARDograph*	April 1981
Guidance and Control Systems Simulation and Validation Techniques AGARDograph*	May 1981
Digital Flight Control Systems for Manned Aircraft AGARDograph*	June 1981

* From earlier programmes.

PROPULSION AND ENERGETICS PANEL

Chairman: Dr J.DUNHAM, UK
Deputy Chairman: Prof. E.E.COVERT, US
Executive: Dr-Ing. E.RIESTER

PROGRAMME

In 1981 the Propulsion and Energetics Panel will place its main interest on installations of powerplants and on ramjets. In these fields the 1981 meetings are proposed and another AGARD Panel's meeting will be supported. In addition, some recent activities will be continued in the field of aero gas turbines, like calculations of internal flows, alternative fuels, engine testing and the use of microprocessors.

The Panel programme in 1981 will consist of one Specialists' Meeting (Spring), in Toulouse, France, one Symposium (Fall) in London, UK, three Working Groups (one of them will be starting and the two others will have reached their final phase), and two AGARDographs. The Panel will also sponsor a Lecture Series.

The Specialists' Meeting on 'Helicopter Propulsion Systems' will be aimed at highlighting progress in propulsion systems for rotary-wing aircraft and will provide a forecast of technological developments for future applications. The historical development will be reviewed and especially those events will be surveyed that have led to today's status. In addition will be included: inlet protection from dusty and sandy unprepared landing sites; component technology peculiar to engine transmissions and drive-trains; life-inhibiting environments; dynamic compatibility of the propulsion and airframe subsystems; and the impact of emerging technologies on future helicopters.

The Panel will support the Fluid Dynamics Panel's Symposium on 'Aerodynamic of Powerplant Installations' by contributing papers, by participating in a joint Programme Committee and by recommending the meeting to participants engaged in the field of jet propulsion. Subjects included in the meeting are combat aircraft intakes; afterbodies and nozzles; testing and analysis techniques; and installation aerodynamics of transport aircraft. The sessions of this meeting are in parallel to those of the meeting on Helicopter Propulsion Systems, thus enabling participants to take part selectively in both meetings.

With the Fall 1981 Symposium on 'Ramjets and Ramrockets for Military Applications', the Panel turns its efforts especially to supersonic missile propulsion systems of highly military interest. The Symposium will be classified NATO Confidential. The meeting will furnish a comprehensive survey on modern ramjet and ramrocket technology and their applications in missiles. Included will be: military requirements; requirements of engine performance; integration of propulsion systems; dual mode engines; boost phase transition; aerodynamics of inlets; variable geometry engines; combustion of solid and liquid propellants and slurries; fuel management; testing methods; materials and manufacturing techniques; pulse jet engines.

Working Group 13 on 'Alternative Jet Engine Fuels' will conclude its work. The draft of the Task Groups reports will be finalised in May 1981. After a review period, the final Working Group report and an Executive Summary will be submitted to the Panel by the end of 1981.

Working Group 14 on 'Suitable Averaging Techniques in Non-Uniform Internal Flows' will hold its last meeting in the Spring 1981. Both an English and a French version of the report will be finalised for printing at the end of the summer of 1981.

Working Group 15 on 'Uniform Engine Testing Programme', after its first meeting in the Fall 1980, will have its test definition phase to ensure the effectiveness of the following test runs. After a preparation phase in which the engine will be prepared for the tests and the facilities must be adapted for the test runs, it is hoped that the test-run phase can start in 1981.

An AGARDograph on 'Airbreathing Engine Test Facility Register and Facility Studies' will have its volume No.1 on Sea Level and Altitude Test Facilities finalised in early 1981, a second volume, a study on Component Test Facilities, is scheduled to start in 1981.

An AGARDograph 'Manual of Aeroelasticity in Turbomachines' will have its main working phase in 1981, when the outlines of contributions will be discussed and the first drafts submitted to the editors.

The Panel will sponsor a Lecture Series on 'Microcomputer Applications in Power and Propulsion Systems' to be held in April 1981 in London, Munich and Genoa.

MEETINGS

57th Panel Meeting/ Specialists' Meeting	- Helicopter Propulsion Systems	11-15 May 1981 Toulouse, France
58th Panel Meeting/ Symposium	- Ramjets and Ramrockets for Military Applications (NATO-Confidential)	26-30 October 1981 London, UK

PUBLICATIONS

<i>Subject</i>	<i>Projected Publication Date</i>
Turbine Engine Testing Conference Proceedings (including Technical Evaluation Report)	January 1981
Through Flow Calculation in Turbomachines Advisory Report	January 1981
Airbreathing Engine Test Facility Register and Facility Studies AGARDograph, Volume I	January 1981
Helicopter Propulsion Systems Conference Preprints	March 1981
Aircraft Fire Safety - Round Robin Test Results Advisory Report, Volume III	March 1981
Helicopter Propulsion Systems Conference Proceedings (including Technical Evaluation Report)	July 1981
Ramjets and Ramrockets for Military Applications Conference Preprints	August 1981
Suitable Averaging Techniques in Non-Uniform Internal Flows Advisory Report (English and French Versions)	July/September 1981
Alternative Jet Engine Fuels Advisory Report (including Executive Summary)	December 1981

STRUCTURES AND MATERIALS PANEL

Chairman: Mr J.B. de JONGE, Netherlands
Deputy Chairman: Dr G.COUPRY, France
Executive: Mr J.M.N.WILLIS

PROGRAMME

The Spring 1981 Panel Meeting will include two Specialists' Meetings, on 'Aircraft Corrosion' and 'Corrosion Fatigue', respectively. The first will consist of four sessions: Session I will cover maintenance community experience of corrosion - that is, problems, needs, etc.; Session II will cover engineering aspects of corrosion; Session III will address best anti-corrosion practice, with contributions expected from maintenance, engineering, R&D and possibly management/administration. The final Session will be a discussion period intended to maximise the interchange between R&D and maintenance communities.

The Specialists' Meeting on 'Corrosion Fatigue' will present and assess the results of the cooperative testing programme which was undertaken by ten laboratories in North America and Europe with the aim of obtaining a better understanding of the corrosion fatigue phenomenon and the means of mitigation for aerospace alloys. Additional papers by experts in the field of corrosion fatigue will also be presented.

Two Specialists' Meetings will also be included in the Fall 1981 Panel Meeting. The first will be on 'Maintenance in Service of High Temperature Parts' and will examine, on a broad front, the inter-relationship between materials science and technology, and maintenance problems, with a view to combatting the increasing cost of maintenance of engines by increasing the utilisation of components. The area to be covered will include protective schemes, monitoring of ageing, rejuvenation of materials, repair schemes and criteria to be adopted for component retirement.

The second Specialists' Meeting will be on 'Dynamic Environmental Qualification Techniques' and will review the current state-of-the-art of techniques and test methods for the dynamic qualification of aircraft stores and equipment, evaluate possible improvements in prediction methods and test techniques, and attempt to formulate a common basis for requirements and substantiation procedures.

The Working Group on 'Helicopter Fatigue', having held a Specialists' Meeting on helicopter fatigue life assessment in Fall 1980, will be preparing a Handbook for use by helicopter designers.

The Working Group on 'Fatigue Rated Fasteners Systems' will be conducting a cooperative testing programme aimed at providing design and cost data for a range of fastener systems, and advice on the criteria for selection.

The first Volume of a Handbook on Corrosion will be completed during the year for publication early in 1982 and work will continue on subsequent Volumes, of which six in all are planned. It is planned to publish a further Chapter of the Manual on Fatigue and work will also continue throughout the year, in conjunction with PEP, on a Manual on Aeroelasticity in Turbomachinery.

The Panel will sponsor a Lecture Series on 'Fatigue Test Methodology' and, jointly with FDP, a Special Course on 'Data Analysis Techniques in Noise and Vibration'.

MEETINGS

52nd Panel Meeting/ - Aircraft Corrosion
 Specialists' Meetings/ - Corrosion Fatigue
 Working Group Sessions

5-10 April 1981
 Turkey

53rd Panel Meeting/ - Maintenance in Service of High-Temperature Parts
 Specialists' Meetings/ - Dynamic Environmental Qualification Techniques
 Working Group Sessions

27 September-
 2 October 1981
 Netherlands

PUBLICATIONS

<i>Subject</i>	<i>Projected Publication Date</i>
Aircraft Corrosion Conference Proceedings	July 1981
Corrosion Fatigue Conference Proceedings	July 1981
Corrosion Fatigue Cooperative Programme Report	December 1981
Maintenance in Service of High-Temperature Parts Conference Proceedings	December 1981
Dynamic Environmental Qualification Techniques Conference Proceedings	December 1981
Handbook on Fatigue of Helicopters AGARDograph	July 1981
Manual on Fatigue. Volume II, Chapter 8 French Version English Version	May 1981 August 1981
Design Handbook on Impact Damage Tolerance of Structures, Volume III AGARDograph	July 1981
Factors of Safety Report	February 1981
Non-Destructive Testing of Ceramic Materials Report	July 1981

TECHNICAL INFORMATION PANEL

Chairman: Ir A.S.T.TAN, Netherlands
 Deputy Chairman: Mr H.E.SAUTER, USA
 Executive: Mr E.T.SHARP

PROGRAMME

The Panel will hold a Specialists' Meeting entitled 'What Should Users Expect from Information Storage and Retrieval Systems of the 1980's?'. Its main purpose is to review the technical innovations which occurred in the field of information storage and retrieval systems during the 1960's and 70's and assess the impact they have had on the users of aerospace scientific and technical information services.

Particular attention will be paid to problems which at present still remain unresolved, such as automatic indexing, fact retrieval and input standardisation. The effect of certain important technical and social changes will also be reviewed and an attempt made to assess what impact these will have upon services being planned for the late 1980's. Topics of special interest to be addressed include the interfaces between technical libraries, technical information centres and on-line services. Finally, there will be a discussion of the contentious subject of service charges and their effect upon information and library services and the relative roles of mini-computers, microprocessors, and the large centralised processor.

MEETINGS

34th Panel Meeting/ Specialists' Meeting	— What Should Users Expect from Information Storage and Retrieval Systems of the 1980's?	7–11 September 1981 Germany
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PUBLICATIONS

<i>Subject</i>	<i>Projected Publication Date</i>
Information Services, their Organization, Control and Use Conference Proceedings	February 1981
Application of Modern Data Processing Techniques to the Production of Dictionaries and Glossaries AGARDograph	February 1981
What Should Users Expect from Information Storage and Retrieval Systems of the 1980's? Conference Preprints	September 1981
What Should Users Expect from Information Storage and Retrieval Systems of the 1980's? Conference Proceedings	December 1981
Copyright in NATO Countries Advisory Report	November 1981

CONSULTANT AND EXCHANGE PROGRAMME

Director, Plans and Programmes: Mr R.A.WILLAUME
Deputy Director, Plans and Programmes: Mr B.HELLOT

INDIVIDUAL CONSULTANTS

The Consultant and Exchange Programme makes available to the NATO member Nations scientific and technical expertise in the aerospace field. Individual consultants are specifically requested by the National Delegates of the Nations concerned. Individual consultants are also made available to support various AGARD activities. Panels or Panel Members request individual consultants' expertise, visits and lectures by individuals or by teams of experts for carrying out part of their programmes. Panels, Working Groups and the various Aerospace Applications Studies Committee also make use of individual consultants to support specific projects. In 1981 the Consultant Programme will also support two special courses, one planned by the Flight Mechanics Panel and the other by the Fluid Dynamics Panel and the Structures and Materials Panel. The Flight Mechanics Panel Flight Test Instrumentation Special Course is organised every two years and the Fluid Dynamics Panel Special Course is held annually and organised jointly with the von Kármán Institute: this year it is co-sponsored by SMP.

<i>Panel</i>	<i>Title of Special Course/Director</i>	<i>Planned Location</i>
FMP	Special Course on Flight Test Instrumentation (FTI)/ Mr L.Lucassen (NAL/NLR)	Delft, The Netherlands (May 1981)
FDP/ SMP	Modern Data Analysis Techniques in Noise and Vibration Problems with Particular Emphasis on Aeroacoustic Applications/Mr M.Perulli (ONERA)	VKI, Brussels, Belgium (May 1981)

LECTURE SERIES

Following the proposals made by AGARD panels, the Consultant and Exchange Programme proposes to implement six Lecture Series during the year 1981.

The large number of requests received from NATO Nations made it necessary to keep about the same level of effort concerning the number of presentations -- which for the year 1981 is proposed at sixteen locations instead of eighteen locations in 1980 -- as described in the following text.

The budget proposed includes the printing of the Lecture Series publications as well as the preparation of the Lecture Series: travel, subsistence allowance and honoraria when appropriate for participating speakers.

Lecture Series No.113	MICROCOMPUTER APPLICATIONS IN POWER	April 1981
(PEP)	AND PROPULSION SYSTEMS	UK/Germany/Italy

The objective of the Lectures will be to familiarise the participants with microprocessor technology, design methods, and current applications in the aeronautical power and propulsion field. Topics proposed include: microprocessor characteristics by manufacturer, memory characteristics, software HI and LO level language tradeoffs, sensor and actuator interfacing, control logic design methods, redundancy managements, and a description of several current applications to engine control.

The Lecture Series Director will chair a round table at the end of the presentations during which comments and suggestions will be expected from participants.

Lecture Series Director: Prof.D.Powell, Department of Aeronautics and Astronautics, Stanford University, Palo Alto, California, USA.

Lecture Series No.114	DYNAMIC STABILITY PARAMETERS	March 1981
(FDP)		Belgium/USA

The proposed Lecture Series will review the impact of high-alpha aerodynamics on the dynamic stability characteristics of aircraft and missiles. A state-of-the-art survey of analytical, wind-tunnel and flight test techniques will be presented. Lectures will include the following topics:

- Basic concepts.
- Impact of high-alpha aerodynamics on dynamic stability parameters.

- Forced oscillation, rotary, snaking, curved, rolling flow, and half-model techniques in wind-tunnel testing.
- Determination of dynamic stability parameters from flight testing.
- Analytical determination of dynamic stability parameters.
- Control derivatives and aircraft motion sensitivity.
- Applications to aircraft and missiles dynamics.

Lecture Series Director: Dr K.J.Orlik-Rückemann, National Aeronautical Establishment, National Research Council, Montreal Road, Ottawa, Ontario K1A 0R6, Canada.

Lecture Series No.115
(AMP)

PERSONAL VISUAL AIDS FOR AIRCREW

June 1981
France/Germany

The Aerospace Medical Panel has selected the subject 'Personal Visual Aids for Aircrew' for a Lecture Series to be presented in 1981.

The purpose of this Lecture Series will be to review:

- The various conventional modes of optical correction required either by ametropias or by normal or pathological drops in visual acuity.
- The various optical corrections by means of contact visual aids.
- The individual brilliance enhancement systems for night flying conditions.
- The harmful effects, on the ocular apparatus, of various radiations (ultraviolet, infrared, visible spectrum, ionizing radiations, laser, nuclear weapons).
- Protective means against these various aggressions.

A round table will close the Lecture Series during which the participants will be invited to present their comments or short papers.

Lecture Series Director: Médecin en Chef J.Chevaleraud, Ecole d'Application du Service de Santé, pour l'Armée de l'Air, Paris Armées, France.

Lecture Series No.116
(AVP)

ELECTROMAGNETIC COMPATIBILITY

August/September 1981
Norway/Germany/Italy

This Lecture Series will describe methodology for the prediction analysis, and test of electromagnetic interference. Current EMC practices and procedures to achieve electromagnetic compatibility within complex weapon systems will be discussed. Topics for discussion include electric current distribution, antenna-to-antenna coupling, intermodulation effects, and spurious responses. Existing data bases for EMC analysis and design, design techniques, and design tools will also be described.

A round-table discussion will close the Lecture Series and participants will be invited to make comments or present suggestions for future work.

Lecture Series Director: Mr John F.Spina, Rome Air Development Center (RBCT) Griffiss Air Force Base, USA.

Lecture Series No.117
(GCP)

**MULTI-VARIABLE ANALYSIS AND DESIGN
TECHNIQUES**

October 1981
Norway/Netherlands/Turkey

The Lecture Series is intended to provide the basic theories and concepts involved in the design of advanced guidance and control systems employing state-space and multi-variable design methods. An intricate part of this Lecture Series will be computer aided and graphical techniques that can be employed in preliminary design and related analysis methods. This will provide one document which covers the necessary design background and state-of-the-art involved in the application of advancing technologies.

Among the main topics to be reviewed are:

- Analysis and Synthesis Techniques.
- Application of Observer and Estimation Principles.
- Computer-Aided Design and Analysis Methods.
- System Simulation Techniques.
- Test Evaluation and Validation.

The Lecture Series Director will chair a round-table discussion at the end of the presentations during which comments and suggestions will be invited from participants.

Lecture Series Director: Dr R.E.Pope, Section Chief, Honeywell Systems and Research Center, Minneapolis, USA.

**Lecture Series No.118
(SMP)****FATIGUE TEST METHODOLOGY**October 1981
Denmark/Portugal/Greece

This Lecture Series will concentrate on fatigue testing of specimens and small components rather than full-scale structures.

Among the main topics covered by the Lecture Series one can mention:

- Tests under variable amplitude loading, including the use of standard sequences such as FALSTAFF AND TWIST.
- Testing under simulated varying environmental conditions.
- Specimen design.
- Possibilities of and problems with computerised control.
- Practical examples will be given of various real cases, problems and techniques used.

A round table will be organised during which the participants will have an opportunity to obtain answers on specific questions.

Lecture Series Director: Dr P.R.Edwards, Royal Aircraft Establishment, Structures Department, Farnborough, UK.

SPECIAL COURSES**FMP****SPECIAL COURSE ON FLIGHT TEST INSTRUMENTATION**May 1981
Netherlands

In 1975 the Flight Mechanics Panel sponsored a Course on Flight Test Instrumentation at Cranfield Institute of Technology (CIT), UK. The aim of the Course was to provide flight test instrumentation engineers with both the theory and practical application of instrumentation techniques; classroom instruction was enhanced by flight experiences in the CIT laboratory aircraft.

The Course was repeated in 1977 at DFVLR Braunschweig, with the support of the CIT aircraft and staff, and again at Cranfield in 1979. The participants' comments on the value of the instruction received appear to justify a further Course in 1981. On this occasion the Netherlands National Delegates have extended an invitation to hold the Course at Delft University of Technology; CIT aircraft and staff would again participate. Funding from the AGARD Consultant and Exchange Programme would support the contributions of around four lecturers from DFVLR and other NATO nations; the remaining costs are to be met by a course fee paid by each participant.

Course Director: Mr L.Lucassen, National Aerospace Laboratory and NLR Amsterdam, The Netherlands.

FDP/SMP**SPECIAL COURSE ON MODERN DATA ANALYSIS TECHNIQUES IN
NOISE AND VIBRATION PROBLEMS WITH PARTICULAR EMPHASIS
ON AEROACOUSTIC APPLICATIONS**May 1981
Belgium

Scope. Content: After a brief review of classical methods, the principles and general theorems and domains of application of modern methods of data analysis will be presented. This will be followed by details of the instrumentation requirements for the implementation of these methods and of the practical problems which arise. Finally, applications to noise and vibration problems will be considered, with reference to particular examples, many of which are chosen to illustrate the intimate connection between acoustics and vibrations in aeroacoustics.

Course Director: Prof. Mario Perulli, ONERA, Châtillon-sous-Bagneux, France.

LECTURE SERIES PUBLICATIONS - 1981

<i>Lecture Series No.</i>	<i>Panel</i>	<i>Title</i>	<i>Projected Publication Date</i>
LS 113	PEP	Microcomputer Applications in Power and Propulsion Systems	March
LS 114	FDP	Dynamic Stability Parameters	February
LS 115	AMP	Personal Visual Aids for Aircrews	May
LS 116	AVP	Electromagnetic Compatibility	July
LS 117	GCP	Multivariable Analysis and Design Techniques	September
LS 118	SMP	Fatigue Test Methodology	September

MILITARY COMMITTEE STUDIES

AEROSPACE APPLICATIONS STUDIES COMMITTEE

Chairman: Mr H.A.ZWEMER, US

MILITARY COMMITTEE STUDIES DIVISION

Chief: Colonel P.A.PRYOR, USA
Deputy for Systems Analysis: Colonel KELLER
Deputy for Research and Development: Dr J.TOPP

PROGRAMME

Two studies were begun in 1980: AAS-12 'Possibilities for Achieving Accurate ASM Delivery from Long Range and from Low and High Altitude' and AAS-13 'Signature Reduction'. Topics for additional studies have been reviewed by the AASC and will be submitted to the AGARD Steering Committee in October 1980 for consideration. It is planned that AAS-14 begin in January 1981.

Publication of Project 2000 has been completed.

Possible Follow-on Studies to Project 2000 and other selected topics as possible AASC studies will be considered by the AGARD Steering Committee in March 1981. AAS-15 should begin in July 1981 and AAS-16 in January 1982.

MEETINGS

AASC Meeting No.19 – Define Final Terms of Reference for AAS-15 and 16
 (Classified) – Organize Working Group for AAS-15
 – Initial Review of AAS-14

May 1981
 UK

AASC Meeting No.20 – Review Terms of Reference for New Studies
 (Classified) – Organize Working Group for AAS-16
 – Final Review of AAS-14
 – Initial Review of AAS-15

November 1981
 US

PUBLICATIONS

Subject

Projected Publication Date

Possibilities for Achieving Accurate ASM Delivery from Long Range and from Low and High Altitude (AAS-12)

July 1981

HEADQUARTERS

OFFICE OF THE DIRECTOR

MEETINGS

50th NATIONAL DELEGATES BOARD MEETING
 28th STEERING COMMITTEE MEETING
 30th PANEL CHAIRMEN MEETING
 11th NATIONAL COORDINATORS' MEETING

25-27 March 1981
 Paris, France

17th AGARD ANNUAL MEETING
 51st NATIONAL DELEGATES BOARD MEETING
 31st PANEL CHAIRMEN MEETING

16-18 September 1980
 Oxford, UK

PUBLICATIONS

<i>Subject</i>	<i>Projected Publication Date</i>
AGARD Bulletin 81/1	March 1981
AGARD Bulletin 81/2	September 1981
Director's Annual Report to North Atlantic Military Committee 1980	March 1981
AGARD Highlights 81/1	Spring 1981
AGARD Highlights 81/2	Fall 1981
Calendar of Selected Aeronautical and Space Meetings	June 1981 December 1981
Revised AGARD History	August 1981
Revised AGARD Handbook	December 1981

III – BUDGET SUMMARY

1981 TECHNICAL PROGRAMME

(IN FRENCH FRANCS)

Panels	1979 <i>Commitments</i>	1980 <i>MBC Approved</i>	1981 <i>Proposed</i>
AMP	192,100	291,500	496,000
AVP	271,400	173,400	215,500
EPP	231,500	222,300	291,500
FDP	264,300	242,700	407,400
FMP	237,700	227,100	320,500
GCP	177,700	297,100	336,000
PEP	215,400	318,300	404,300
SMP	201,200	272,700	323,300
TIP	22,100	158,200	47,800
SUB-TOTAL – PANELS	<u>1,813,400</u>	<u>2,203,300</u>	<u>2,842,300</u>
INDIVIDUAL CONSULTANTS	405,000	355,000	450,000
LECTURE SERIES	771,400	766,300	816,000
SUPPORT TO NATIONS	45,000	66,000	70,000
MILITARY COMMITTEE STUDIES	105,400	76,000	76,000
HEADQUARTERS	72,600	210,000	219,700
OTHER COSTS (Certificates, Layout Sheets, Forms, Meeting Announcements, Distribution, Internal Reproduction, Technical Translation, etc.)	245,800	292,900	365,400
TOTAL – NORMAL AGARD TECHNICAL PROGRAMME	<u>3,458,600</u>	<u>3,969,500</u>	<u>4,839,400</u>
MAD	120,700	152,000	—
P-2000 – PHASE II	344,900	—	—
ADDITIONAL SUPPORT TO G.T.P.	—	—	500,000
TOTAL – SPECIAL TASKS	<u>465,600</u>	<u>152,000</u>	<u>500,000</u>
GRAND TOTAL – INCLUDING SPECIAL TASKS	<u>3,924,200</u>	<u>4,121,500⁽¹⁾</u>	<u>5,339,400⁽²⁾</u>

(1) A revised 1980 budget was submitted to the Military Budget Committee in June 1980 for approval of FF 4,444,960.

(2) Average price for the full year.

IV - 1981 PUBLICATIONS SUMMARY

<i>Activity</i>	<i>Reports</i>	<i>Advisory Reports</i>	<i>AGARDographs</i>	<i>Conference Preprints</i>	<i>Conference Proceedings</i>	<i>Misc.</i>	<i>Total</i>
AMP	—	—	2	2	1	—	5
AVP	—	1	—	2	2	—	5
EPP	—	—	—	2	3	—	5
FMP	—	3	3	—	2	—	8
FDP	2	3	5	2	1	—	13
GCP	—	2	5	—	2	—	9
PEP	—	5	1	2	2	—	10
SMP	3	—	2	—	4	2	11
TIP	—	1	1	1	2	—	5
DPP	—	—	—	—	—	6	6
MCS	—	1	—	—	—	—	1
HQS	—	—	—	—	—	10	10
TOTALS	5	16	19	11	19	18	88